REMARKS

Claims 25-45 remain pending in this application. Claims 25-27, 29, 31-34, 38-42, and 44 have been amended to clarify the present invention and not for reasons of patentability. Claims 1-24 previously were canceled.

I. Obviousness-Type Double Patenting Rejection

To overcome the obviousness-type double patenting rejection of pending claims 25-45, a terminal disclaimer and fee are submitted herewith.

II. § 103 Rejection

Applicant submits that claims 25-45 are not obvious over U.S. Patent No. 5,741,085 to Wirtgen (Wirtgen) in view of U.S. Patent No. 4,532,271 to Kai et al. (Kai) and U.S. Patent No. 6,203,606 to Bond et al. (Bond) or U.S. Patent No. 4,839,404 to Chang et al. (Chang). Still further, these claims are not obvious even if the references mentioned above are combined with U.S. Patent No. 5,284,509 to Kamel et al. (Kamel) and/or U.S. Patent No. 6, 440,205 to Bailey et al. (Bailey) and/or U.S. Patent No. 5,114,483 to Graf (Graf). Without using Applicant's invention as a template, there is no teaching or suggestion by the cited references to combine these references so as to suggest Applicant's invention.

No Prima Facie Case of Obviousness Has Been Established

As the standard for assessing obviousness, MPEP 706.02(j) lists three requirements for establishing a *prima facie* case of obviousness under 35 U.S.C. § 103:

(1) First, there must be some suggestion or motivation, either in the reference itself or in the knowledge generally available to one of ordinary skill in the art, to modify the references to arrive at the claimed invention.

(2) Second, there must be a reasonable expectation of success.

(3) Finally, the prior art references must teach or suggest all of the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on Applicant's disclosure.

It is respectfully submitted that these three requirements have not been met. Therefore, Applicant respectfully submits that a *prima facie* case of obviousness for rejecting the pending claims has not been established.

The Cited References Do Not Teach or Suggest the Subject Matter Claimed

As admitted in the Office Action, Wirtgen does not disclose or suggest the performance of a raveling test or a moisture susceptibility test, as claimed by Applicant in claims 25-45. In fact, Wirtgen does not disclose or suggest using performance tests to select an asphalt emulsion mixture for reconstructing a paved road, as claimed in claims 25-45.

Kai is cited for teaching that raveling tests have been performed. Bond and Chang are cited for teaching that moisture susceptibility tests have been performed. However, neither Kai nor Bond nor Chang suggests the desirability of performing both raveling and moisture susceptibility tests on a proposed asphalt mixture before selecting an asphalt mixture for reconstructing a paved road, as claimed in independent claims 25 and 42. Out of the numerous performance tests that could be performed, there is no teaching or suggestion by the cited references of the desirability of performing the specific combination of a raveling and a moisture susceptibility test. Further, there is no suggestion that an asphalt mixture should be selected after performing raveling and moisture susceptibility tests, and there is no suggestion that the selection process for choosing an asphalt emulsion to reconstruct a paved road should involve

raveling and moisture susceptibility performance tests on a proposed asphalt mixture, as claimed in independent claims 25 and 42.

Kai merely performs a raveling test to verify the properties of his inventive bituminous paving material that comprises aggregate particles pre-coated with a phenolic resin before being dispersed in bituminous material. Bond merely mentions that a moisture susceptibility test has been performed on asphalt cement but does not suggest moisture susceptibility testing should be integrated into the formulation process when practicing his invention. Still further, Chang performs a moisture susceptibility test in the form of a boil test to determine the adhesion of asphalt to the aggregate. Neither Kai nor Bond nor Chang suggest performance testing as a design technique for formulating an asphalt emulsion mixture for reconstructing a paved road when one actually is practicing what is taught by these references. For the foregoing reasons, the cited references do not teach or suggest the subject matter claimed in independent claims 25 and 42.

Claims 26-41 depend from claim 25 and are novel and non-obvious over the cited references for the same reasons that claim 25 is novel and non-obvious. While Kai mentions performing a stability test, it does not suggest doing such testing as part of a design technique for formulating an asphalt emulsion mixture, as claimed in claim 26. Instead, the stability test is merely done to show that using the phenolic resin of Kai's invention provides a product with more stability.

As admitted in the Office Action, the combination of Wirtgen, Kai, Bond, and Chang fails to disclose or suggest testing modulus or resilient modulus, as claimed in claims 27-30. Kamel is cited for teaching that resilient modulus of pavement has been measured. However,

Kamel merely performs a resilient modulus test to confirm that his invented paving asphalt cement has superior temperature susceptibility. Kamel does not suggest using a resilient modulus test as part of a design technique for selecting an asphalt emulsion mixture to be used for reconstructing a paved road. Further, Kamel does not suggest the desirability of performing a resilient modulus test along with a raveling test and a moisture susceptibility test. There is no suggestion by the cited references of using the unique combination of a modulus test, a raveling test, and a moisture susceptibility test, and, in some instances, a stability test, to test a proposed asphalt mixture and select an asphalt mixture for reconstructing a paved road after performing these tests.

As admitted in the Office Action, the combination of Wirtgen, Kai, Bond and Chang fails to disclose or suggest teaching a thermal cracking test, as claimed in claims 31 and 32. Accordingly, Bailey is cited for teaching that thermal cracking tests have been performed. However, Bailey is merely using a thermal cracking test to show that his invented paving binder confers good thermal cracking resistance to pavement in a low-temperature zone. Bailey does not disclose or suggest using a thermal cracking test as part of a design technique for formulating an asphalt mixture. Further, neither Bailey nor the other cited references disclose the desirability of using a thermal cracking test along with a raveling test and a moisture susceptibility test as a design technique for formulating an asphalt emulsion mixture to be used for reconstructing a paved road, as claimed in claims 31 and 32. Still further, as claimed in claim 32, there is no suggestion by Bailey or the other cited references of using a stability test along with a thermal cracking test as part of a design technique for selecting an asphalt emulsion mixture.

As admitted in the Office Action, the combination of Wirtgen, Kai, Bond and Chang fails to disclose a cationic emulsifier, as claimed in claim 33. Graf is cited for teaching a paving

composition with a cationic emulsifier. However, Graf provides no suggestion of using a cationic emulsifier in an asphalt mixture that is to be used in reconstructing a paved road, as claimed by Applicant. Accordingly, the cited references provide no motivation to use the cationic emulsifier of Graf in the process disclosed by Wirtgen.

As admitted in the Office Action, none of the cited references discloses or suggests formulating at least two different proposed asphalt emulsion mixtures and testing them for performance, as claimed in claim 38. Further, such a design technique is not obvious in view of the cited references. As discussed above, none of the cited references suggests performance testing a proposed asphalt mixture followed by selecting an asphalt emulsion mixture to be used for reconstructing a paved road. Accordingly, if performance testing a proposed asphalt mixture is not suggested, then performance testing two proposed asphalt mixtures also is not suggested.

Claims 43-45 depend from claim 42 and are novel and non-obvious over the cited references for the same reasons that claim 42 is novel and non-obvious, as discussed above. Another aspect of the present invention is a method of reconstructing a road, which is claimed in claims 42-45, using the design techniques discussed above. The combination of Wirtgen, Kai, Bond and Chang does not disclose or suggest selecting an asphalt emulsion mixture to be used for reconstructing a paved road after testing a proposed asphalt emulsion mixture for raveling and moisture susceptibility performance, forming the selected asphalt mixture using reclaimed asphalt pavement particles from the road, and applying the mixture to the partially reclaimed road so as to form a cold in-place recycling layer, as claimed in claims 42-45. Applicant's invented design process was developed by determining that raveling and moisture susceptibility performance were important in a cold in-place recycling process and that a superior cold in-place

recycling layer could be created by using a design process that involved these particular performance tests.

No Motivation for Modifying Wirtgen

The obviousness rejection is premised upon the combination of Wirtgen with Kai, Bond, and Chang, namely that it would have been obvious to a person of ordinary skill in the art to apply the tests taught by Kai, Bond, and Chang to the pavement process taught by Wirtgen. In the previous section, we have demonstrated that the obviousness rejection is flawed because applying the teachings of Kai, Bond, and Chang to Wirtgen would not arrive at Applicant's claimed invention. Specifically, there is no teaching or suggestion of (1) choosing specifically a raveling test in combination with a moisture susceptibility test, and (2) using a combination of performance tests on a proposed asphalt mixture to select an asphalt emulsion mixture to be used for reconstructing a paved road. However, this obviousness rejection also is fundamentally flawed for another reason: the cited references are not properly combinable. The Wirtgen invention is concerned with a cold in-place recycling process that involves milling away a paved road to a necessary depth, crushing the material, mixing the crushed material with binders, and using that mixture to re-pave the road. There is no suggestion by Wirtgen that certain performance tests could be useful in helping to formulate the binder/milled road surface mixture. Accordingly, there is no motivation provided by Wirtgen to look to the performance tests disclosed by Kai, Bond, Chang, Kamel, and/or Bailey.

No Expectation of Success

One of ordinary skill in the art would not have a reasonable expectation of success in achieving Applicant's claimed invention from the teachings of the cited references. More specifically, one of ordinary skill in the art would not have a reasonable expectation of success in

developing Applicant's claimed method of selecting an asphalt emulsion mixture to be used for reconstructing a paved road using the teachings of the cited references.

The claimed invention is specific to selecting an asphalt emulsion mixture for reconstructing a paved road and is not for making an asphalt emulsion mixture to be used for any paving application. One of ordinary skill in the art would have no expectation of making a successful asphalt emulsion mixture to be used for reconstructing a paved road by using performance tests when the references that teach the performance tests do not suggest that such tests are especially useful with respect to reconstructed roads made by recycling reclaimed asphalt. Without using Applicant's invention as a template, one of ordinary skill in the art would have no motivation from the cited references to performance test a proposed asphalt mixture using the specific combination of a raveling test and a moisture susceptibility. The way in which the asphalt emulsion mixture is selected is a key part of Applicant's invention. By using raveling and moisture susceptibility performance to select an asphalt emulsion mixture to be used for reconstructing a paved road, a superior reconstructed road can be created. For the foregoing reasons, one of ordinary skill in the art would not have a reasonable expectation of successfully achieving Applicant's claimed invention from the teachings and suggestions in the cited references.

III. Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that claims 25-45 are now in condition for allowance and eventual issuance. Such action is respectfully requested. Should the Examiner have any further questions or comments which need be addressed in order to obtain allowance, please contact the undersigned attorney at the number listed below.

Acknowledgement of receipt is respectfully requested.

Respectfully submitted,

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